INDIAN SCHOOL AL WADI AL KABIR

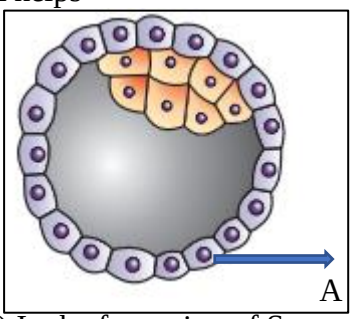
UNIT TEST (2024-25)

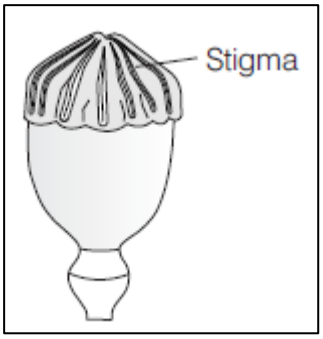
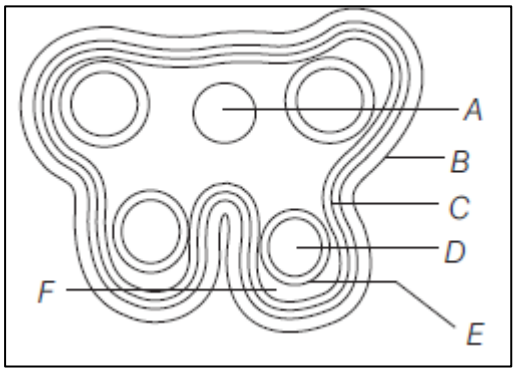
CLASS: XII **Sub: BIOLOGY** **MAX.MARKS: 30**

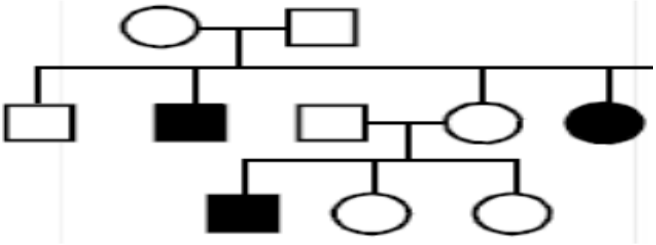
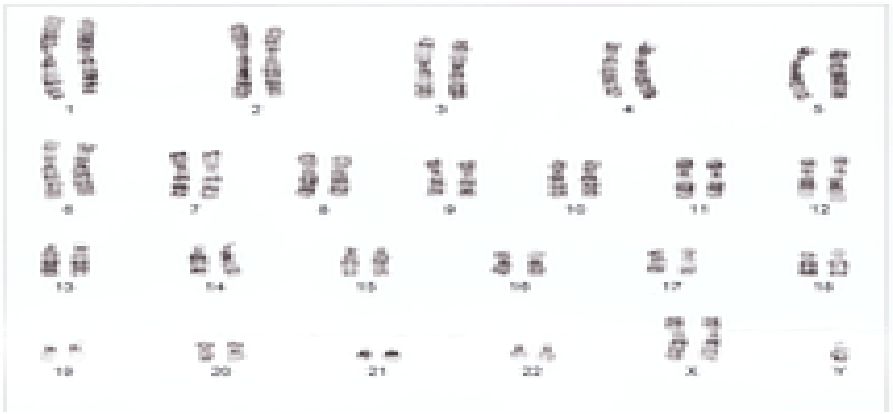
DATE: 26/05/2024 **Set - I** **TIME: 1 HOUR**

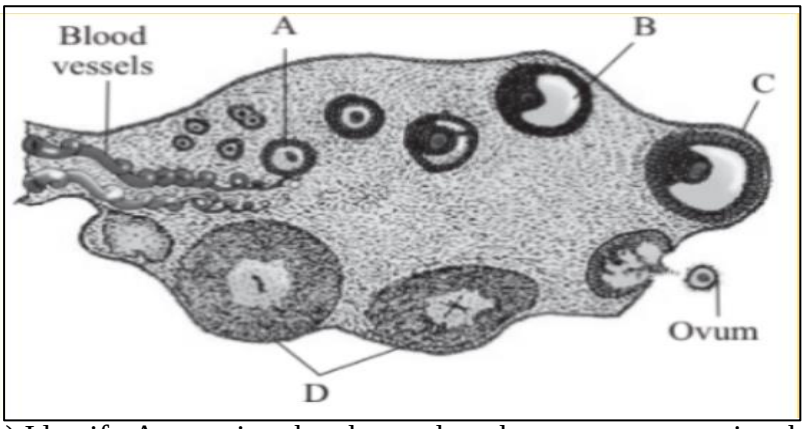
GENERAL INSTRUCTION:

(i)	*This question paper consists of five sections **A**, **B**, **C**, **D** & **E**. Section **A** contains 8 questions of one mark each, Section **B** is of 2 questions of two marks each, Section **C** is of 3 questions of three marks each and section D contains 1 question which is case-based of four marks and Section E of 1 question of 5 marks.*
(ii)	*All questions are compulsory.*
(iii)	*There is no overall choice. However, an internal choice has been provided in one question of 2 marks, in one question of 3 marks and one question of 5 marks weightage. Attempt only one of the alternatives in such questions.*
(iv)	*Wherever necessary, the diagrams drawn should be neat and properly labelled.*

SECTION A		
Q.NO.	QUESTIONS	MKS
1	In humans, the secondary oocyte completes meiotic division when a) It gets implanted in the uterine endometrium. b) It is released from the matured Graafian follicle. c) It is penetrated by the sperm. d) The tertiary follicle develops.	1
2	A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by: a) Insects b) Water c) Wind d) Animals	1
3	Given below is the Blastocyst stage of the human embryo, the part marked A helps  a) In the formation of Stem cells b) In implantation c) In the formation of embryo d) In the formation of germinal layers.	1

4	The following hormone is released in the human female only during pregnancy. a) HCG b) Estrogen c) Progesterone d) LH	1
5	Identify the type of pistil from the diagram  a) Multicarpellary,apocarpous b) Multicarpellary,syncarpous c) Multicarpellary, pistillate d) Monocarpellary,apocarpous	1
6	The part marked D & E shown in the transverse section of the young anther are.  a) D-sporogenous tissues, E-Tapetum b) D-Tapetum , E-sporogenous tissues c) D-middle layer, E-endothecium d) D-connective tissue, E-epidermis	1
7	**Assertion**: In a blood test of a person suffering from sickle cell anaemia, both types of RBC's were detected, one having bi-concave shape and the other having sickle shape. **Reason:** There is blending of traits in the formation of RBC's. a) Both assertion and reason are true, and the reason is the correct explanation of the assertion. b) Both assertion and reason are true, but the reason is not the correct explanation of the assertion. c) Assertion is true but reason is false. d) Both assertion and reason are false	1

8	**Assertion:** Honey Bees show haplo-diploid pattern of sex determination. **Reason:** In Honey Bees, the male receives two set of chromosomes while the females receive a single set. a) Both assertion and reason are true, and the reason is the correct explanation of the assertion. b) Both assertion and reason are true, but the reason is not the correct explanation of the assertion. c) Assertion is true but reason is false d) Both assertion and reason are false	1
	SECTION B	
9	Given below is the pedigree chart, answer questions in relation to it.  i) Identify the type of genetic inheritance (Whether autosomal or sex-linked). ii) Identify the genotype of the parents and the diseased off-springs. iii) Thalassemia is a quantitative blood disorder. Comment.	2
10	Identify the type of inheritance shown by phenylketonuria, how can you relate this disorder to pleiotropy. OR a) Identify the type of inheritance shown by Haemophilia and what is the cause of the disease. b) The possibility of female becoming Haemophilic is rare. Comment	2
	SECTION C	
11	Given below is the karyotype of an individual showing a chromosomal disorder, answer the following in relation to this disorder. a) Identify the Chromosomal disorder with reason. b) What is the cause of this genetic disorder. c) State any two identifying features of an individual suffering this disorder. 	3

12	Answer the following a) With the help of diagrams illustrate the formation of a mature pollen grain. b) Apomictic seeds are very useful in hybrid seed industries. Why? OR a) With the help of diagrams illustrate the formation of a mature embryo sac. b) How many male gametes and female gametes are produced by: (i) 5 Microspore mother cells (ii) 5 megaspore mother cells	3
13	The diagram given below shows the events occurring in an ovary during Oogenesis in a human female.  a) Identify A, mention the phase when the process occurs in a human female. b) Identify D, name the hormone produced by it. c) Identify B, briefly describe this stage .	3
SECTION D Q. No. 14 is a case-based question. The question has 3 subparts with internal choice in one subpart.		
14	Read the following passage and answer questions: The primary sex organs – the testis in the males and the ovaries in the females–produce gametes, i.e, sperms and ovum, respectively, by the process called gametogenesis. In testis, the immature male germ cells produce sperms by spermatogenesis that begins at puberty. The spermatogonia present on the inside wall of seminiferous tubules multiply by mitotic division and increase in numbers. 1. The statements given below are related to the male testis in humans: i) Each seminiferous tubule consists of two types of cells. ii) Male germ cells are also called spermatogonia. iii) Male germ cells undergo reduction division. The correct combination a) Only i & ii b) i, ii, iii c) Only ii & iii d) Only i & iii	1

2. Match the following

Column-I	Column-II
A) Spermatogonia	i) sperms
B) Primary spermatocytes	ii) maturation of sperms
C) Spermatocytes	iii) Meiosis
D) Spermiogenesis	iv) Mitosis

a) A-iv B-iii C-i D-ii
b) A-iv B-i C-ii D-iii
c) A-i B-ii C-iii D-iv
d) A-ii B-iii C-i D-iv

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3.With the help of a flow chart illustrate the hormonal action during spermatogenesis.

OR

Identify the pathway the sperm takes from the testes to its release in the humans.

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SECTION E

15 a) Design Mendel's test cross, for violet colour and white colour flower in pea plant.
b) Compare the pattern of inheritance of flower colour in garden pea plant with snapdragon on the basis of the following.
i) F1 phenotypic expression
ii) Expected phenotypic and genotypic expression of F2 generation.
iii) The conclusion you reach at the end of the comparison made.

OR

a) Who coined the term Linkage and how did he discover this phenomenon?
b) How does this concept help in the study of genetics?
c) With the help of a cross, explain the sex determination in Grasshopper and Drosophila?

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